WHAT IS CLAIMED IS:

1. A system for effectively performing a scheduling operation, comprising:
    an allocation manager configured to handle a scheduling request by
        analyzing request parameters;
    a scheduling manager configured to schedule a task that is authorized
        by said allocation manager; and
    a processor for controlling said allocation manager and said scheduling
        manager to thereby perform said scheduling operation.

2. The system of claim 1 wherein said task includes one or more
isochronous processes that require a deterministic and guaranteed
performance.

3. The system of claim 1 wherein said scheduling operation is performed
in an electronic network that is implemented according to an IEEE Std 1394
serial bus interconnectivity standard.

4. The system of claim 1 wherein said task is performed on a device that
includes one of a consumer-electronics device, an audio-visual device, a set-
top box device, and a computer device.

5. The system of claim 1 wherein said task includes one of a data transfer
operation, a processor operation, a memory-access operation, and a signal-
processing operation.

6. The system of claim 1 wherein said request parameters include at least
one of a resource requirement and an execution interval for performing said
task.

7. The system of claim 6 wherein device software issues said scheduling
request to said allocation manager for scheduling said task.

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8.   The system of claim 6 wherein said allocation manager analyzes said resource requirement to limit total allocated device resources to one-hundred percent of available device resources.

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9.   The system of claim 6 wherein said scheduling operation is synchronized to a base cycle that serves as a timing reference for performing said task, said base cycle forming part of a contiguous base cycle sequence.

10   10.   The system of claim 9 wherein said allocation manager analyzes said execution interval to ensure that an execution interval duration T conforms to a symmetrical execution-interval specification requirement.

11.   The system of claim 10 wherein said symmetrical execution interval
15   specification requirement may be expressed by a formula:

$$T = (t_{base})\ 2^n$$

where t_{base} is a duration of said base cycle, and T is said execution interval
20   duration required for executing said task.

12.   The system of claim 6 wherein said allocation manager analyzes said scheduling request and returns one of an error message or a request grant message.

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13.   The system of claim 6 wherein said allocation manager adds said task to a task table along with at least one of said resource requirement and said execution interval.

30   14.   The system of claim 13 wherein said allocation manager assigns a scheduling priority level to said task, said scheduling priority level being inversely proportional to said execution interval.

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15. The system of claim 14 wherein said scheduling manager references said task table to identify said task for scheduling based upon said scheduling priority level.

16. The system of claim 15 wherein said scheduling manager references a ready-to-run table to determine whether said task can immediately be scheduled and executed.

17. The system of claim 15 wherein said scheduling manager schedules and begins executing said task.

18. The system of claim 17 wherein said scheduling manager references a resources-consumed table to determine whether said task has consumed all allocated resources, said scheduling manager terminating said task when an allocated-resource limit is reached.

19. The system of claim 17 wherein said processor resets said scheduling operation when a new base cycle begins.

20. The system of claim 1 wherein said scheduling operation includes a plurality of tasks that are scheduled to execute in a sequence in which only one of said plurality of tasks may execute at any given moment.

21. A method for effectively performing a scheduling operation, comprising the steps of:

    handling a scheduling request by analyzing request parameters with an allocation manager;

    utilizing a scheduling manager to schedule a task that is authorized by said allocation manager; and

    controlling said allocation manager and said scheduling manager with a processor to thereby perform said scheduling operation.

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22. The method of claim 21 wherein said task includes one or more isochronous processes that require a deterministic and guaranteed performance.

23. The method of claim 21 wherein said scheduling operation is performed in an electronic network that is implemented according to an IEEE Std 1394 serial bus interconnectivity standard.

24. The method of claim 21 wherein said task is performed on a device that includes one of a consumer-electronics device, an audio-visual device, a set-top box device, and a computer device.

25. The method of claim 21 wherein said task includes one of a data transfer operation, a processor operation, a memory-access operation, and a signal-processing operation.

26. The method of claim 21 wherein said request parameters include at least one of a resource requirement and an execution interval for performing said task.

27. The method of claim 26 wherein device software issues said scheduling request to said allocation manager for scheduling said task.

28. The method of claim 26 wherein said allocation manager analyzes said resource requirement to limit total allocated device resources to one-hundred percent of available device resources.

29. The method of claim 26 wherein said scheduling operation is synchronized to a base cycle that serves as a timing reference for performing said task, said base cycle forming part of a contiguous base cycle sequence.

30. The method of claim 29 wherein said allocation manager analyzes said execution interval to ensure that an execution interval duration T conforms to a symmetrical execution-interval specification requirement.

5 31. The method of claim 30 wherein said symmetrical execution interval specification requirement may be expressed by a formula:

$$T = (t_{base}) \; 2^n$$

10 where t_{base} is a duration of said base cycle, and T is said execution interval duration required for executing said task.

32. The method of claim 26 wherein said allocation manager analyzes said scheduling request and returns one of an error message or a request grant
15 message.

33. The method of claim 26 wherein said allocation manager adds said task to a task table along with at least one of said resource requirement and said execution interval.

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34. The method of claim 33 wherein said allocation manager assigns a scheduling priority level to said task, said scheduling priority level being inversely proportional to said execution interval.

25 35. The method of claim 34 wherein said scheduling manager references said task table to identify said task for scheduling based upon said scheduling priority level.

36. The method of claim 35 wherein said scheduling manager references a
30 ready-to-run table to determine whether said task can immediately be scheduled and executed.

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37.   The method of claim 35 wherein said scheduling manager schedules and begins executing said task.

38.   The method of claim 37 wherein said scheduling manager references a resources-consumed table to determine whether said task has consumed all allocated resources, said scheduling manager terminating said task when an allocated-resource limit is reached.

39.   The method of claim 37 wherein said processor resets said scheduling operation when a new base cycle begins.

40.   The method of claim 21 wherein said scheduling operation includes a plurality of tasks that are scheduled to execute in a sequence in which only one of said plurality of tasks may execute at any given moment.

41.   A computer-readable medium containing program instructions for performing scheduling operations by performing the steps of:
    handling a scheduling request by analyzing request parameters with an allocation manager;
    utilizing a scheduling manager to schedule a task that is authorized by said allocation manager; and
    controlling said allocation manager and said scheduling manager with a processor to thereby perform said scheduling operation.

42.   A system for effectively performing a scheduling operation, comprising:
    means for handling a scheduling request by analyzing request parameters;
    means for scheduling a task that is authorized by said means for handling said scheduling request; and
    means for controlling said means for handling said scheduling request and said means for scheduling tasks to thereby perform said scheduling operation.

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